

CLASSIFIED MESSAGE

U2X

ORIG: [] Approved For Release 2005/02/10 : CIA-RDP75B00159R000100170041-8
UNIT: AMS/OSA
EXT: []
DATE: 22 JANUARY 1969

SECRET

ROUTING	
1	RE/SA
2	D/N/OSA
3	D/N/OSA
4	D/O/OSA
5	IDEA/OSA
6	SAS/O/OSA
7	D/R&D/OSA
8	D/SA

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TO SECRET INFO

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REIGE INFO: []

IDEALIST

SUBJECT: U-2R OXYGEN SYSTEM

REF: [] (NOT SENT ABAFT)

1. AT THE COMPLETION OF 50 HOURS OF SUCCESSFUL IN-FLIGHT OPERATION OF THE MODIFIED OXYGEN SYSTEM, [] REQUESTS THAT THE FOLLOWING INFORMATION BE PROVIDED CONCURRENTLY WITH [] RECOMMENDATIONS:

A. COMPLETE LOX PRESSURE AND QUANTITY VERSUS TIME DATA FOR EACH TEST FLIGHT. ASSOCIATED INFORMATION REGARDING SERVICING (I.E., HOW LONG BEFORE FLIGHT WAS SYSTEM SERVICED? WAS IT LEFT IN BUILD-UP OR VENT BETWEEN FLIGHTS? DID THE SYSTEM REQUIRE HIGH FLOWS AT COCKPIT OR SYSTEM VENTING PRIOR TO FLIGHT TO REDUCE HEAD PRESSURE?) AND PILOT DATA (I.E., WHICH PILOT? WHAT TYPE SUIT WAS USED?) SHOULD BE INCLUDED.

B. DATA OBTAINED FROM ALL BENCH TESTS. SPECIFICALLY, COORDINATING OFFICERS

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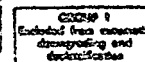
HOW DOES SYSTEM REACT TO PERIODS OF HIGH FLOW (UP TO 90 LPM) OR LOW FLOW (10 LPM OR LESS). HOW LONG BEFORE LIQUID ENTERS PILOT CONSOLE AT HIGH FLOWS? DOES A PERIOD OF LOW DEMAND FOLLOWING A PERIOD OF HIGH FLOW RESULT IN ABNORMAL PRESSURES?

C. FAILURE ANALYSES DATA IS DESIRED AND APPROPRIATE TESTING IS REQUESTED TO OBTAIN INFORMATION ON SYSTEM PERFORMANCE WITH FAILURE OF THE RELIEF VALVE (FAILED OPEN TO DEGREES RANGING FROM LOW LEAKAGE THROUGH MAXIMUM RELIEF VALVE FLOW), AND FAILURE OF THE PRESSURE CONTROL VALVE (FAILED OPEN). IN SUCH INVESTIGATIONS, REALISTIC SIMULATION OF NORMAL DEMAND ON THE SYSTEM SHOULD BE EMPLOYED. DATA OF PRIMARY CONCERN IS HOW THE PILOT WILL DETECT A GIVEN FAILURE AND WHAT THE TIME FACTOR IS FOR A GIVEN FAILURE (I.E., TIME TO REACH ZERO PRESSURE OR QUANTITY).

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2. ASIDE FROM THE MODIFIED SYSTEM, SOME BASIC QUESTIONS REMAIN PERPLEXINGLY UNANSWERED REGARDING OUR LOX PROBLEMS TO DATE. IF POSSIBLE, IT IS REQUESTED THAT [] ATTEMPT TO CLEAR UP THESE QUESTIONS ALONG WITH THE ABOVE REQUESTED INFORMATION. 25X1

A. THE MAJORITY OF OUR PAST LOX PROBLEMS CAN BE EXPLAINED ON THE BASIS OF FAILURE OF THE CHECK VALVE TO FUNCTION PROPERLY. THIS LED TO A REDESIGN OF THE CHECK VALVE BY [] INITIALLY AND NOW TO ELIMINATION OF THE CHECK VALVE ENTIRELY. HOWEVER, [] HAS SUPPLIED LOX COMPONENTS FOR ALL SR-71 AND RELATED AIRCRAFT WHICH ARE IDENTICAL, INCLUDING THE CHECK VALVE, TO THE U-2R COMPONENTS AND THERE HAS BEEN APPARENTLY NO SIMILAR DIFFICULTIES ENCOUNTERED IN THESE PROGRAMS. IN ADDITION, OVER 3,000 RELATED ASSEMBLIES ARE IN USE IN OTHER USN AND USAF AIRCRAFT. CAN THE DIFFERENCES IN FLIGHT ENVIRONMENT READILY EXPLAIN THE DIFFERENCE IN CHECK VALVE PERFORMANCE BETWEEN THE U-2R AND OTHER AIRCRAFT, CONSIDERING THAT THE CHECK VALVE IS

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PASSING LIQUID OXYGEN AT MINUS 297 DEGREES F?

B. IF ENVIRONMENTAL FACTORS DO NOT ACCOUNT FOR OUR APPARENT CHECK VALVE MALFUNCTIONS, CAN CONTAMINATION BE THE BASIC PROBLEM? MOISTURE SHOULD NOT BE A FACTOR CONSIDERING THE PURGE PROCEDURES NOW EMPLOYED. CONTAMINATION HAS NOT BEEN DETECTED IN LOX SAMPLES TAKEN FROM STORAGE TANKS, SERVICE CARTS OR CONVERTERS THEMSELVES. HOWEVER, IF PARTICULATE CONTAMINATION IS PRESENT IN SOME OF OUR CONVERTERS, WHAT WILL BE THE EFFECT OF CHECK VALVE REMOVAL? WILL WE EXPECT TO SEE PRESSURE CONTROL VALVE FAILURES AS PARTICULATE MATTER MOVES THROUGH THE BUILD UP CIRCUIT, OR WILL CONTAMINATION BECOME UNIMPORTANT WITH RESPECT TO MALFUNCTIONS?

3. IT IS APPRECIATED THAT SOME OF THE ABOVE QUESTIONS WOULD REQUIRE EXTENSIVE RESEARCH BEFORE FINAL ANSWERS COULD BE OBTAINED, AND IT IS NOT [] INTENTION TO DELAY OBTAINING A TROUBLE-FREE OXYGEN SYSTEM. HOWEVER, WITH EACH PAST ATTEMPT THAT FAILED TO SOLVE

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THE LOX PROBLEMS, A REDUCED CONFIDENCE LEVEL IN THE SYSTEM ON THE PART OF THE PILOTS AND OTHER CONCERNED PARTIES WAS INCURRED. THEREFO ANSWERS TO QUESTIONS SUCH AS THOSE POSED ABOVE ARE NOW AS IMPORTANT AS PROPOSED FIXES IN RESTORING OR ATTAINING CONFIDENCE, AND SHOULD BE DISCUSSED AT 28 END OF MESSAGE
JAN 69 LOX CONFERENCE.

COORD:

D/M/OSA

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